Appendix A

HYSPLIT Back Trajectory Protocol for Exceptional Events in AirNow-Tech
By Anthony Barnack

Instructions:
Log onto Airnow Tech and go to the Navigator tab. You will need an account to log on.

1. **Under the Parameter Tab Select:**
   PM2.5-88502
   Duration 1 hr
   Display – parameter, HMS fire, and HMS smoke if you want

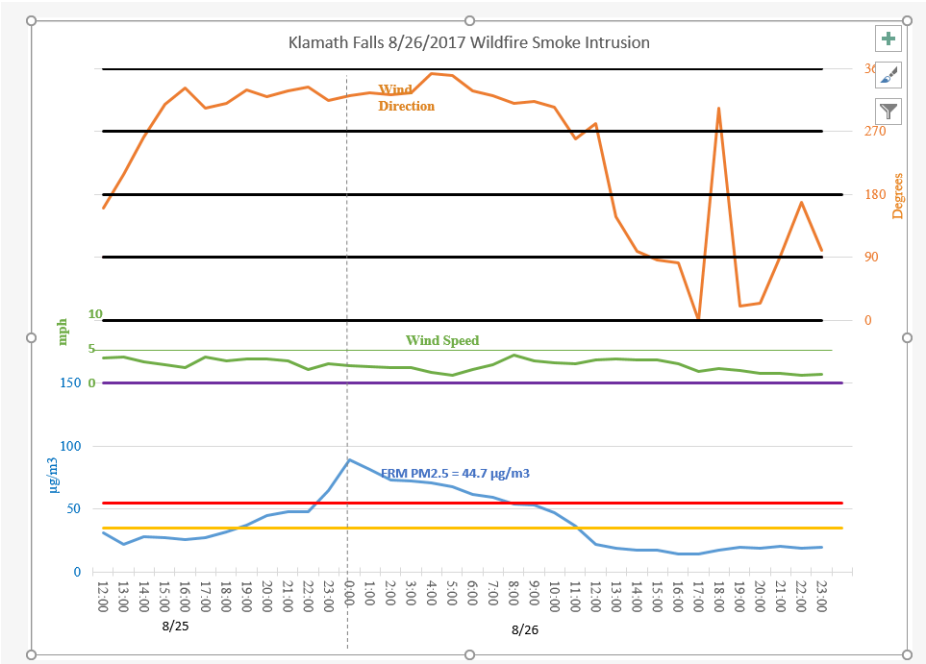
2. **Under the Site Tab Select:**
   By Parameter - PM2.5-88502
   By Duration – 1 HR

3. **Under the Layers Tab Select:**
   I usually add the states border. You can also add the MODIS satellite images if it helps.

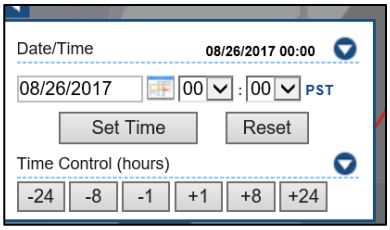
4. **My maps – Leave as Standard**

5. **Setting the time and date on the map.**
   I usually look at the time series to see what time of day the biggest impact was and the WD and WS at the time.

   For KFalls, 8/26/17, the impact was at 0:00 PST with winds from the NNW. This tells you when to set your map time and what fires you will be looking at.

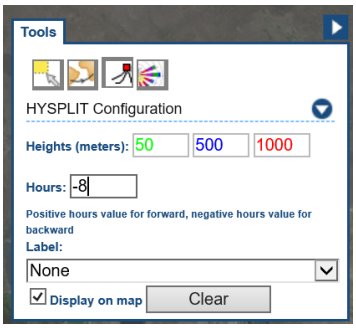


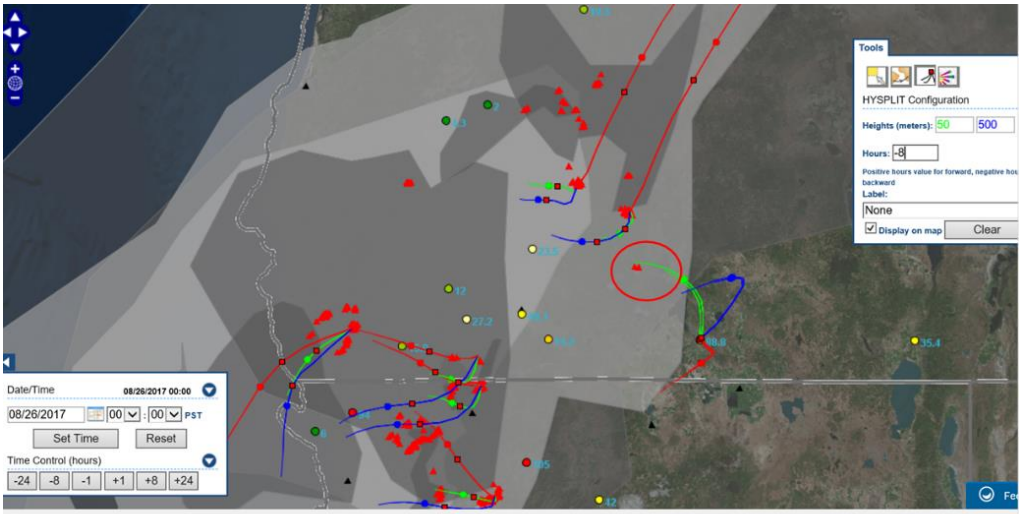
6. Set the map time



7. Under the lower arrow at the upper right is the tool box.

Select the red box for Hysplit. I use 50, 500, and 1000 meters.
You can do a back trajectory by putting negative hours in and clicking on the site.
Forward trajectory is from the forest fire and positive hours.
When ready click on the site or fire you want a trajectory for.



Notes:

I use the HMS smoke discussed in step 1 to see where the old smoke is and get an idea of where the smoke is heading. I turn it off to see the map. It usually takes many iterations of changing the trajectory hours to see where the impact came from. Here is the Hysplit for 8/26/17. The fires are 8 hour forward trajectory from 8/25/17 16:00 (8 hrs before the high impact). The site is an 8 hr back trajectory. The KFalls back trajectory shows that the fire to the northwest of KFalls was likely most responsible but there is also latent smoke from the other fires that remains aloft and slides down the east slopes of the Cascades at night when the air cools. This is pretty common in KFalls, so any smoke over the Cascades slides down when the air cools into the valleys.